

Remarks

Claims 1-59 were pending in the subject application. By this Amendment, the applicants have amended claims 1, 3, 4, 8, 18, 34 and 57 and cancelled claims 20 and 28-33. Further, the applicants have withdrawn claims 14-17, 24-27 and 53-59 as being drawn to non-elected subject matter. Support for the claim amendments can be found throughout the specification and claims as originally filed, including at, for example, page 3, lines 8-9. No new claim is presented. No new matter has been added by these amendments. Accordingly, claims 1-13, 18-19, 21-23, and 34-52 are now before the Examiner for consideration.

The amendments to the claims have been made in an effort to lend greater clarity to the claimed subject matter and to expedite prosecution. The amendments should not be taken to indicate the applicant's agreement with, or acquiescence to, the rejection of record. Favorable consideration of the claims now presented, in view of the remarks and amendments set forth herein, is earnestly solicited.

Initially, the specification of the subject application has been objected to because it contains embedded hyperlinks and/or other forms of browser-executable code. By this Amendment, the applicants have amended the specification at pages 20, 24, and 56 to delete reference to the embedded hyperlinks and/or browser-executable codes.

Claims 28-33 have been rejected under 35 U.S.C. §112, first paragraph. In order to expedite prosecution, these claims have been cancelled, thereby rendering moot this ground for rejection.

Claims 1-5, 7, 8, 10, 12, 18-21, 23, 34-38, and 44-52 have been rejected under 35 U.S.C. §102(b) as being anticipated by Clancy *et al.* (2000, *Infection and Immunity* 68(5):2621-2629). The applicants respectfully traverse this ground for rejection because the cited reference does not disclose each and every element of the claimed invention.

It is basic premise of patent law that, in order to anticipate, a single prior art reference must disclose within its four corners, each and every element of the claimed invention. In *Lindemann v. American Hoist and Derrick Co.*, 221 USPQ 481 (Fed. Cir. 1984), the court stated:

Anticipation requires the presence in a single prior art reference, disclosure of each and every element of the claimed invention, arranged as in the claim. *Connell v. Sears Roebuck and Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983); *SSIH Equip. S.A. v. USITC*, 718 F.2d 365, 216 USPQ 678 (Fed. Cir. 1983). In deciding the issue of anticipation, the [examiner] must identify the elements of the claims, determine their meaning in light of the specification and prosecution history, and identify corresponding elements disclosed in the allegedly anticipating reference. *SSIH, supra*; *Kalman [v. Kimberly-Clarke]*, 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983)] (emphasis added). 221 USPQ at 485.

Clancy *et al.* discloses a urease-expressing bacteria, nonureolytic *S. mutans*, which lacks the ability to express a nickel transporter. In fact, because the nonureolytic strains in Clancy “lack the high-affinity transport proteins that are needed to scavenge sufficient Ni<sup>2+</sup> from the environment,” NiCl<sub>2</sub> needs to be added to the growth medium in order to observe significant urease activity. (Clancy at page 2624). By this amendment, claims 1 and 18 now recite a recombinant bacterial cell that expresses a nickel transporter. In addition, the original claim 34 recites a composition comprising a nickel transporter expressing vector. Thus, claims 1, 18, 34 and all other claims that ultimately depend from these claims are not anticipated. Accordingly, the applicants respectfully request reconsideration and withdrawal of this rejection under 35 U.S.C. §102(b) based on the Clancy *et al.* reference.

Claims 1-5 have been rejected under 35 U.S.C. §102(b) as being anticipated by Chen *et al.* 1996 (*Infection and Immunity* 64(2):585-592). The applicants respectfully traverse this ground for rejection because the cited reference does not disclose each and every element of the claimed invention.

Chen discloses a urease gene cluster that lacks nickel transporter coding genes (Chen at page 587). By this amendment, claim 1 now recites a recombinant bacterial cell that expresses a nickel transporter. Thus, claim 1 and all other claims that ultimately depend from claim 1 are not anticipated. Accordingly, the applicants respectfully request reconsideration and withdrawal of this rejection under 35 U.S.C. §102(b) based on Chen *et al.*

Claims 1-6, 10, 11, 18, 19, 21, 38, and 52 have been rejected under 35 U.S.C. §102(a) as being anticipated by Dong *et al.* (2002, *Environmental Microbiology* 68(11):5549-5553). The

applicants respectfully traverse this ground for rejection because the cited reference does not disclose each and every element of the claimed invention.

Dong discloses an arginine deminase system incapable of expressing nickel transporter genes. By this amendment, claims 1 and 18 now recite a recombinant bacteria cell that expresses a nickel transporter. In addition, the original claim 34 recites a composition comprising a nickel transporter expressing vector. Thus, claims 1, 18, 34 and all other claims which ultimately depend from these claims are not anticipated. Accordingly, the applicants respectfully request reconsideration and withdrawal of this rejection under 35 U.S.C. §102(a) based on Dong *et al.*

Claim 23 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Dong *et al.* (2002, Applied and Environmental Microbiology 68(11):5549-5553) as applied to claims 1-6, 10, 11, 18, 19, 21, and 52 above.

In order to render a claim obvious, references in combination must teach all elements of the claim. MPEP 2143.03. Dong's arginine deminase system lacks nickel transporter genes; therefore, in view of the amendment to claim 18, Dong fails to teach all limitations of claim 23. Accordingly, the applicants respectfully request reconsideration and withdrawal of this rejection under 35 U.S.C. §103 based on the Dong *et al.* reference.

Finally, claims 9, 13, and 38-53 have been objected to for depending on a rejected base claim. In view of the foregoing remarks and amendments to the claims, the applicants believe that the independent claims 1 and 34 are in condition for allowance; therefore, the applicants respectfully request reconsideration and withdrawal of this objection.

In view of the foregoing remarks and amendments to the claims, the applicants believe that the currently pending claims are in condition for allowance, and such action is respectfully requested.

The Commissioner is hereby authorized to charge any fees under 37 CFR §§1.16 or 1.17 as required by this paper to Deposit Account No. 19-0065.

The applicants also invite the Examiner to call the undersigned if clarification is needed on any of this response, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,



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